

LISTING OF CLAIMS

Claims 1 and 2 (Canceled)

Claim 3 (Currently Amended): ~~The~~ A rotation driving apparatus as claimed in Claim 1,
having a motor at least rotating at a high speed and a low speed, a torque generating circuit for
generating a torque of the motor by a supply voltage from a power source, a motor control circuit
for controlling rotation of the motor, a rotation detector for detecting a rotating speed of the
motor and transmitting a detection signal to the motor control circuit and controller for delivering
the rotating speed of the motor and a number of revolutions thereof to and from the motor
control circuit, wherein

the torque generating circuit includes a voltage detector for detecting a level of the supply
voltage and a period of voltage drop, the voltage detector transmitting a voltage-drop information
to the controller,

the controller memorizes power-recovery information including a voltage drop and a
period thereof under an instantaneous blackout recoverable within a predetermined period, and
rotation-control pattern information of the motor corresponding to the power-recovery
information, in advance, and

the controller controls rotation of the motor upon comparing the voltage-drop
information, the power-recovery information, and the rotation-control pattern information of the
motor with each other, the setting-up a rotation-control pattern information of the motor has
having ranges of an accelerating rotation, a constant high-speed rotation and a decelerating
rotation, ~~wherein~~ such that when the voltage detector detects a voltage drop during the
accelerating rotation of the motor, the controller outputs control signals ~~of for~~ decelerating
rotation of the motor; next rotating the motor at a constant speed; and after the power recovery,
accelerating rotation of the motor.

Claim 4 (Currently Amended): ~~The A~~ rotation driving apparatus ~~as claimed in Claim 1,~~
having a motor at least rotating at a high speed and a low speed, a torque generating circuit for
generating a torque of the motor by a supply voltage from a power source, a motor control circuit
for controlling rotation of the motor, a rotation detector for detecting a rotating speed of the
motor and transmitting a detection signal to the motor control circuit and controller for delivering
the rotating speed of the motor and a number of revolutions thereof to and from the motor
control circuit, wherein

the torque generating circuit includes a voltage detector for detecting a level of the supply
voltage and a period of voltage drop, the voltage detector transmitting a voltage-drop information
to the controller,

the controller memorizes power-recovery information including a voltage drop and a
period thereof under an instantaneous blackout recoverable within a predetermined period, and
rotation-control pattern information of the motor corresponding to the power-recovery
information, in advance, and

the controller controls rotation of the motor upon comparing the voltage-drop
information, the power-recovery information, and the rotation-control pattern information of the
motor with each other, the setting-up a rotation-control pattern information of the motor having
has ranges of an accelerating rotation, a constant high-speed rotation and a decelerating rotation,
wherein such that when the voltage detector detects a voltage drop during the accelerating
rotation of the motor, the control means outputs control signals ~~of~~ for: decelerating rotation of
the motor; next rotating the motor at a constant speed; and after the power recovery,
compensating the accelerating rotation of the motor at the voltage drop.

Claim 5 (Original): The rotation driving apparatus as claimed in Claim 4, wherein the
accelerating rotation of the motor after the power recovery is carried out by increasing an
acceleration rate of the accelerating rotation of the motor in the rotation-control pattern toward a
finish time of the accelerating rotation of the motor in the set up rotation-control pattern.

Claim 6 (Original): The rotation driving apparatus as claimed in Claim 4, wherein it is set up that the accelerating rotation of the motor after the power recovery conforms to the accelerating rotation of the motor of the set up rotation-control pattern and that a period of the constant high-speed rotation of the motor is equal to a period of the constant high speed rotation of the motor in the set up rotation-control pattern, and

a deceleration rate of the decelerating rotation of the motor is increased so that a finish time of the decelerating rotation of the motor coincides with a finish time of the decelerating rotation of the motor in the set up rotation-control pattern.

Claim 7 (Original): The rotation driving apparatus as claimed in Claim 4, wherein the accelerating rotation of the motor after the power recovery is maintained to a higher speed than a speed of the constant high-speed rotation of the motor in the set up rotation-control pattern, and

after rotating the motor at the higher speed, the motor is decelerated so as to coincide with a finish time of the decelerating rotation of the motor in the set up rotation-control pattern.

Claim 8 (Currently Amended): ~~The A~~ rotation driving apparatus ~~as claimed in Claim 1,~~ having a motor at least rotating at a high speed and a low speed, a torque generating circuit for generating a torque of the motor by a supply voltage from a power source, a motor control circuit for controlling rotation of the motor, a rotation detector for detecting a rotating speed of the motor and transmitting a detection signal to the motor control circuit and controller for delivering the rotating speed of the motor and a number of revolutions thereof to and from the motor control circuit, wherein

the torque generating circuit includes a voltage detector for detecting a level of the supply voltage and a period of voltage drop, the voltage detector transmitting a voltage-drop information to the controller,

the controller memorizes power-recovery information including a voltage drop and a period thereof under an instantaneous blackout recoverable within a predetermined period, and rotation-control pattern information of the motor corresponding to the power-recovery information, in advance, and

the controller controls the rotation of the motor upon comparing the voltage-drop information, the power-recovery information and the rotation-control pattern information of the motor with each other, wherein such that when the voltage detector detects a voltage drop during the accelerating rotation of the motor, the control means outputs control signals ~~of~~ for: decelerating rotation of the motor; next rotating the motor at a constant speed; and stopping rotation of the motor if time has passed a period of the instantaneous blackout.

Claims 9-12 (Canceled)

Claim 13 (New): A rotation driving apparatus having a motor at least rotating at a high speed and a low speed, a torque generating circuit for generating a torque of the motor by a supply voltage from a power source, a motor control circuit for controlling rotation of the motor, a rotation detector for detecting a rotating speed of the motor and transmitting a detection signal to the motor control circuit and a controller for delivering the rotating speed of the motor and a number of revolutions thereof to and from the motor control circuit, wherein

the torque generating circuit includes a voltage detector for detecting a level of the supply voltage and a period of voltage drop, the voltage detector transmitting voltage-drop information to the controller,

the controller memorizes power-recovery information including a voltage drop and a period thereof under an instantaneous blackout recoverable within a predetermined period, and rotation-control pattern information of the motor corresponding to the power-recovery information, in advance, and

the controller compares the voltage-drop information and the power-recovery information to determine whether the instantaneous blackout recoverable within a predetermined period has occurred, and controls the rotation of the motor on the basis of the rotation-control pattern information of the motor corresponding to the power-recovery information when the instantaneous blackout has occurred.

Claim 14 (New): The rotation driving apparatus as claimed in Claim 13, wherein when the voltage detector detects a voltage drop during the accelerating rotation of the motor, the controller outputs control signals for decelerating rotation of the motor and subsequently rotating the motor at a constant speed.

Claim 15 (New): The rotation driving apparatus as claimed in Claim 13, wherein the rotation-control pattern information of the motor has ranges of an accelerating rotation, a constant high-speed rotation and a decelerating rotation, wherein when the voltage detector detects a voltage drop during the accelerating rotation of the motor, the controller outputs control signals for: decelerating rotation of the motor; next rotating the motor at a constant speed; and after the power recovery, accelerating rotation of the motor.

Claim 16 (New): The rotation driving apparatus as claimed in Claim 13, wherein the rotation-control pattern information of the motor has ranges of an accelerating rotation, a constant high-speed rotation and a decelerating rotation, wherein when the voltage detector detects a voltage drop during the accelerating rotation of the motor, the control means outputs control signals for: decelerating rotation of the motor; next rotating the motor at a constant speed; and after the power recovery, compensating the accelerating rotation of the motor at the voltage drop.

Claim 17 (New): The rotation driving apparatus as claimed in Claim 16, wherein the accelerating rotation of the motor after the power recovery is carried out by increasing an acceleration rate of the accelerating rotation of the motor in the rotation-control pattern toward a finish time of the accelerating rotation of the motor in the set up rotation-control pattern.

Claim 18 (New): The rotation driving apparatus as claimed in Claim 16, wherein it is set up that the accelerating rotation of the motor after the power recovery conforms to the accelerating rotation of the motor of the set up rotation-control pattern and that a period of the constant high-speed rotation of the motor is equal to a period of the constant high-speed rotation of the motor in the set up rotation-control pattern, and

a deceleration rate of the decelerating rotation of the motor is increased so that a finish time of the decelerating rotation of the motor coincides with a finish time of the decelerating rotation of the motor in the set up rotation-control pattern.

Claim 19 (New): The rotation driving apparatus as claimed in Claim 16, wherein the accelerating rotation of the motor after the power recovery is maintained at a higher speed than a speed of the constant high-speed rotation of the motor in the set up rotation-control pattern, and

after rotating the motor at the higher speed, the motor is decelerated so as to coincide with a finish time of the decelerating rotation of the motor in the set up rotation-control pattern.

Claim 20 (New): The rotation driving apparatus as claimed in Claim 13, wherein when the voltage detector detects a voltage drop during the accelerating rotation of the motor, the control means outputs control signals for: decelerating rotation of the motor; next rotating the motor at a constant speed; and stopping rotation of the motor if time has passed a period of the instantaneous blackout.

Claim 21 (New): A rotation driving apparatus having a motor at least rotating at a high speed and a low speed, a torque generating circuit for generating a torque of the motor by a supply voltage from a power source, a motor control circuit for controlling rotation of the motor, a rotation detector for detecting a rotating speed of the motor and transmitting a detection signal to the motor control circuit, and a controller for delivering the rotating speed of the motor and a number of revolutions thereof to and from the motor control circuit, wherein

the torque generating circuit includes a voltage detector for detecting a level of the supply voltage and a period of voltage drop, the voltage detector transmitting voltage-drop information to the controller,

the controller memorizes power-recovery information including a voltage drop and a period thereof under an instantaneous blackout recoverable within a predetermined period, and rotation-control pattern information of the motor corresponding to the power-recovery information, in advance, and

the motor control circuit compares the voltage-drop information and the power-recovery information to determine whether the instantaneous blackout recoverable within a predetermined period has occurred, and controls the rotation of the motor on the basis of the rotation-control pattern information of the motor corresponding to the power-recovery information when the instantaneous blackout has occurred.

Claim 22 (New): A rotation driving method for a rotation driving apparatus having a motor at least rotating at a high speed and a low speed, a torque generating circuit for generating a torque of the motor by a supply voltage from a power source, and a voltage detector arranged in the torque generating circuit to detect a level of the supply voltage and a period of a voltage drop, comprising the steps of:

memorizing power-recovery information including the voltage drop and the period of the voltage drop under an instantaneous blackout recoverable within a predetermined period, and rotation-control pattern information of the motor corresponding to the power-recovery information, in advance, and

obtaining voltage-drop information detected by the voltage detector and further comparing the voltage-drop information and the power-recovery information to determine whether the instantaneous blackout recoverable within a predetermined period has occurred, and controlling the rotation of the motor on the basis of the rotation-control pattern information of the motor corresponding to the power-recovery information when the instantaneous blackout has occurred.

Claim 23 (New): The rotation driving method as claimed in Claim 22, wherein the step of comparing the voltage-drop information, the power-recovery information and the rotation-control pattern information of the motor with each other is carried out by a controller configured to give and receive both a rotating speed of the motor and a number of revolutions thereof to and from a motor control circuit for controlling the motor through the torque generating circuit.

Claim 24 (New): The rotation driving method as claimed in Claim 22, wherein the step of comparing the voltage-drop information, the power-recovery information and the rotation-control pattern information of the motor with each other is carried out by the motor control circuit for controlling the motor through the torque generating circuit.